

the credit they seem to deserve. It is conceded that dental caries and pyorrheal socket conditions have their causation largely in dental uncleanness; it is also beginning to be understood that the enamel of the teeth of civilized beings is rarely smooth and that its lustre is only partially developed. There is, unfortunately, a superstitious fear on the part of many that scaling and polishing the teeth may injure the enamel. The reverse of this being the case, and having the teeth *slippery* being one of the most certain preventives of dental disease, with their sometimes serious sequelae, it may prove that physicians, through encouraging special and home care of the exposed tooth surfaces, and especially in the very young, will be able to add still another merit to their credit in the care of mankind.

EXTRACTS FROM IMPROMPTU TALK  
AND RADIOGRAPH EXHIBIT. PAN-  
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By JOSEF NOVITZKY, D. D. S., San Francisco.

We hear much of medication by way of the blood stream these days. Vaccines, emetin, mercury, almost anything is shoved into the blood stream for the cure of bone lesions.

This treatment, gentlemen, in the handling of pyorrhea is absolutely absurd. Treatment of this kind, even if it were correct, would belong to the field of medicine and not dentistry.

In many pyorrhea cases the intelligent use of the radiograph will show or indicate bone sepsis.

There is absolutely no question in my mind, but that the necrosed structure, whether it is in the jaws or in the upper air passages, may be contaminating the entire blood stream of the part. The blood supply does not reach the terminal parts in full volume, or it may be the actual means for the access of infection. The fact remains that such environment would be favorable for the development of suppurative conditions, even if they do not act as the direct cause.

It will readily be seen then, that the attempted cure of a pyorrhea in the anterior part of the mandible, associated with a necrosed area in the body of the bone, would not be along the lines of scaling the teeth, or the introduction of drugs, or vaccines into the blood stream.

*What is indicated, is surgery, drainage, thorough ventilation, and immobilization—putting the teeth in splints and treating them as you would treat a fracture.*

We are constantly looking for the elixir of youth, something that will clean up things at one fell swoop. You are not going to find it. A little intelligence is all that is indicated in pyorrhea cases. I do not believe that any certain organism can be blamed for the destruction. I have yet to find a pyorrhea case, one that constantly comes back to you for treatment, that is not intimately associated with sepsis some place in the jaw, or upper air passages. You can not get a permanent cure until you clean up the cause of it, be it what it may. If it is embolic from a septic center in jaw or air passages, causing metastatic

suppuration in remote parts, whether they are teeth afflicted with metastatic suppurative conditions, or whether it lodges in a joint and causes an arthritis, I repeat, it is absurd to treat the symptoms by way of the blood stream, without a removal, or attempted removal of the direct cause. I am not referring merely to those cases caused by obvious prosthetic irritation, be it in the form of a filling, crown, bridge or plate; it does not matter.

In every case, to attempt the eradication of the cause is the first thing to do, and in the name of all that is righteous give the part an opportunity of ridding itself of its natural filth and secretion.

Pyorrhea when once it reaches the acute stage with fibrous degeneration of the sockets and resorption of the alveolus, is practically hopeless as far as a cure is concerned. We cannot now immobilize the parts. The patient must have function; he must use his teeth. We know that it would be impossible to secure union in an infected fracture while it was swinging about at random. We have the same problem to contend with, in this advanced pyorrhea work.

We have seen the periosteum loosen and detach itself from the long bones of a horse after hard galloping on hard ground. Very much the same thing happens with the few teeth that are left in position, in advanced pyorrhea cases. The forces of occlusion being centered on a few teeth soon cause inflammatory changes in sockets and alveolus. We can not treat this the way it should be treated, by immobilization, etc.

Therefore, I say again, we must remove the cause of these conditions *before* they bring us to this extremity.

Coming back to the radiograph, this picture shows rarefaction many years after the extraction of dead teeth. This work as done at present should be considered malpractice.

The extraction of such teeth should be preceded by radiographs of them. If the plate shows any involvement of the process, or the jaw proper, the gums and periosteum should be lifted and retracted, the necrosed bone removed with the chisel, gouge, or curette and the teeth removed.

In many cases you will find the process discolored, with areas of disintegrated bone involving the apical region. If the tooth is a molar, the septum will frequently be involved. Immediately below this, the bone will be considerably thickened, the structure losing its cancellous appearance.

Now, how would it be possible to foretell all this, without the radiograph? If you proceed to operate without first knowing whether there is any jaw involvement, you might find after endless ripping around, that there were no pathological conditions present.

You will say, "Well, we have 'pulled' such teeth (or broken them off), for many years. The gums heal over, sometimes a little slowly, it is true, but in a few months' time the gums are pink and firm and we don't see any bad results."

Of course, you don't!

It usually takes some years before the patient makes very emphatic moves for assistance, and you

probably would not recognize the lesion (whatever it might be) as being in any way related to a piece of necrosed jaw, even if you knew the necrosed area to be present, which you probably would not.

The radiograph will fail to show anything in many of these old cases, due to the thickening which invariably takes place.

Some years after the extraction, an exploratory operation, if carefully done, under local anesthesia, will generally show mushy structure.

The extraction of the dead tooth will clean up the trouble in some cases and part of the trouble in others. But in a certain percentage of cases you are allowing the patient to fight out the balance of the disorder, and that is wrong. It is wrong if only one per cent. comes to harm through it, and I have reason to believe that the percentage is very much higher.

Here is a typical case, these three radiographs spread over five years' time:

The first one shows an area of rarefaction involving the dental canal. The second shows the case after operation, the entire body of the mandible being removed down to the dental nerve, which had long since disappeared in company with the blood vessels. The third plate, three years later, shows new bone with practically a normal size mandible. The canal of course is obliterated. This man was seen in consultation with Dr. Von der Lieth. His Wassermanns were all negative. He had absolutely no systemic taint that could be responsible for this trouble. There was no history of industrial poisons. He had been gone over very carefully by his medical advisers, with no definite findings. He had some dead molars extracted about eight months before the trouble began. The gums closed over the sockets slowly, but eventually the parts were firmly united. Some months after, he had a swelling over the inferior dental foramen, and punctured it with his finger nail. (The pus drained for many months from this foramen.) Pain was excessive, but finally went away, leaving his lower lip numb on one side.

There are several other cases here, emphasizing this point of retention after tooth extraction.

The inferior dental canal involvement, with drainage from the inferior dental foramen, is a very important point. This complication I have observed in numerous cases in more or less degree, both chronic and acute.

I first called attention to this fact in March of this year. Since then I have had the good fortune to come in contact with a few more of these dental canal cases, with inferior dental foramen drainage. This condition if kept in mind will explain some of the chronic and acute tonsillar inflammations. Septic matter may drain from infected teeth, through the root apices directly into the dental canal, thence backward to the inferior dental foramen directly into the tonsillar region. The molar root ends, in many cases, being so close to the dental canal that drainage from these teeth has direct access into the dental tube.

Many indurations of the parotid, submaxillary and sublingual regions, serious and otherwise, have

been demonstrated to be due to this drainage. The infectious matter does not always drain down the tissue planes of the neck, neither does it always follow along the mylohyoid groove to the submaxillary gland. Much depends on the amount of pus and gas pressure and also the rapidity with which the suppuration is initiated.

Parotid indurations have been traced to a septic dental canal.

Bell's Palsy, either alone, or in conjunction with induration of the glandular structures of the anterior part of the neck, floor of mouth and angle of the jaw, has been frequently observed. There is no doubt but that many of the Bell's Palsy cases (that is, the typical paralyses of the facial terminals) can be demonstrated to be due to septic irritation from a suppurating dental canal.

The periosteum of the ascending ramus is not very adherent. Pus assisted by a small amount of gas pressure, coupled with the movements of the muscles and ligaments covering the inner side of the ascending ramus, could well spread the infectious matter backward and upward as well as downward. There is no doubt that these movements would aggravate the extent of the trouble. Witness the efforts made by the body forces to localize the infection by sticking the inflamed structures fast, and the board-like rigidity of the masticatory muscles preventing their function and spread of the infection.

Bell's Palsy has been noted in some cases with an absence of induration, either of the Ludwig's angina type, or the milder form. The septic canal, however, was present. Paralysis was ushered in by exposure to cold. The fact remains that the septic jaw undoubtedly lowered the vitality of the part, if it did not cause the condition directly.

Whether or not the facial nerve has any connection with the inferior dental, remains to be worked out at some future time. Anesthesia of the facial has been observed in injecting the inferior dental at the mandibular foramen. This was very noticeable in a case where more than the ordinary amount of novocain solution was used (8 c. c.). Anesthesia of the mylohyoid, lingual, facial, and finally the inferior dental was secured. The dental nerve had probably become thickened from septic irritation or was actually inflamed and did not take up the solution readily. If in these injections, the needle is placed close to the posterior border of the ascending ramus, it would be close to that part of the facial trunk passing through the parotid gland. Anesthesia of the seventh nerve would then take place, independently of any connection with the inferior dental branch of the fifth. If the anesthetic is deposited at the mandibular foramen in amounts of from six to eight c. c. (2 c. c. is ample for the average inferior dental anesthesia) and through the looseness of the covering soft parts, the parotid region and the seventh nerve becomes infiltrated. It stands to reason that septic drainage from this foramen, in much less amount, would have the same opportunity for access to the facial trunk that our injections have in some instances.

The diagnosing of troublesome molars is not always easy, even with the help of the radiograph.

In some cases the radiograph shows the rarefaction in the cancellous bone. But in one case that I have in mind, the radiograph showed merely a thickening and blurring of root outline with apparently direct contact with the dental canal. The tooth was opened with the drill and found to be dead. A very small amount of greenish pus and some odor was noticeable; no destruction whatever appeared in the bone. The septic matter in this case was apparently taken up from the dental tube by the blood stream. Arthritic lesions of the finger joints were present. After tooth removal, the root membranes were found vital, the root ends, however, were discharging into the canal. There were no symptoms of trouble about the tooth or jaw.

In another one of the chronic cases, root apices were discharging into the canal. A little destruction was seen in the radiograph. The anterior cervical lymphatics were indurated. A myositis of muscles of shoulder and back of neck was present; also a slight buzzing in the ear of the affected side.

The number of septic upper molars discharging under the antral membrane is absolutely astounding, the membrane, in many cases, being intact; and even in those cases with direct perforation into the antrum, they are more apt to simulate a chronic course, than an acute suppuration. Many of these cases show little rarefaction, and as the pus is generated slowly and probably rapidly absorbed, the condition may escape notice for many years, there being no local evidence of its presence. The teeth certainly do not give evidence of any serious trouble.

I am very glad to state that Dr. Cryer and Dr. Brophy have both called attention to these antral conditions, remarking on the frequency with which these antral suppurations can be demonstrated to arise from septic teeth.

Statistics on the causes of antral infections, gathered by men like Chiari and Hajeck, should be accepted with considerable conservatism. These men, though they are authorities in their own field, have undoubtedly overlooked many cases of obscure dental origin.

There is no doubt but that ideas as to the frequency of antral infections emanating from dental conditions will undergo a radical change in the near future.

### BLOOD TRANSFUSION SIMPLIFIED.

By A. V. DORAN, M. D., Vallejo.

The apparatus for blood transfusion herein described will, I am sure, appeal to all as about the simplest one possible. It does away with all cumbersome and expensive tubes and syringes and is easily and quickly made.

All one needs is a wide-mouthed bottle of from six to sixteen ounces capacity, a rubber cork with two perforations, and glass tubing which fits the perforations rather snugly. Also plenty of the following mixture: paraffin 3 parts, white petrolatum 1 part.

A—Glass tubing drawn into a tip so as to enter

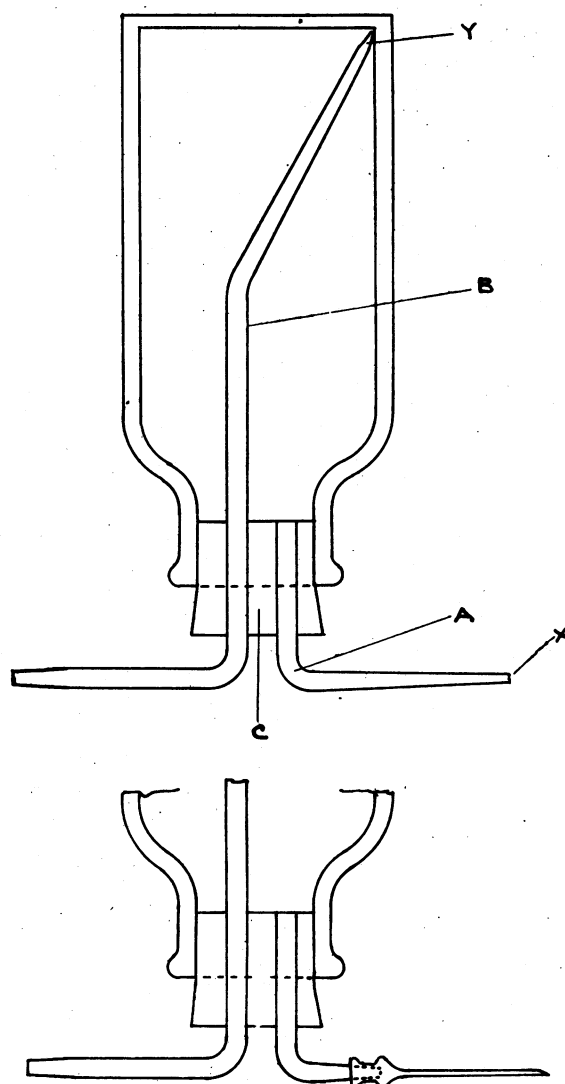
the vein easily. This tip can be made any shape desired, but should be long enough so that when the bottle is held over sideways the tip at X will be above the level of the tube B at Y. "A" should end at the inner level of the cork.

B—Glass tubing bent so that it will end at Y.

Procedure: The glass tubes are placed in the proper position in the cork and they, with the bottle, are cleaned with alcohol and then with ether and allowed to dry. They are then sterilized by dry heat. While still warm, the cork and tubes are immersed in the melted paraffin-petrolatum mixture, a quantity of which is poured into the bottle. They are both drained of excess coating. The cork with tubes attached is then quickly inserted into the mouth of the bottle and firmly tied to the neck of the bottle by a piece of tape.

This apparatus is allowed to cool, with the bottle right side up, and is then ready for use.

A number of these pieces of apparatus can be



SAME APPARATUS USED WITH INTRAVENOUS NEEDLE.